Statement, Representative George E. Brown, Jr., United States House of Representatives

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HONORABLE GEORGE E. BROWN, JR.
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I am honored to be here today and I would like to extend a personal welcome to our Japanese guests. This symposium will benefit both of our countries as we seek to use common knowledge and resources to protect lives and property from devastating earthquakes.

As a native Californian, I have witnessed many earthquakes. The most recent notable trembler was the Northridge quake which killed more than 50 people and injured over 1500. The economic devastation of that quake was enormous—on the order of Hurricane Andrew—at an estimated cost of $15 billion.

Our friends from Japan know as much about the devastating power of earthquakes as anyone. As bad as the Northridge quake was, it pales in comparison to the quake centered under Kobe, Japan in 1995. The Kobe quake left over 5000 dead and 26,000 injured and produced direct economic losses in excess of $100 billion.

I know that in the wake of the Northridge quake, the Japanese people acted to provide assistance to the citizens of California. I also know that in the wake of the Kobe quake the people of the United States, and especially here in California, were moved to provide relief to our friends in Japan.

Humanitarian assistance in the wake of these disasters is heart-warming and builds strong bonds between our nations. But it is not enough. We also need to continue to cooperate to better understand the dynamics of earthquakes and to better prepare our societies to minimize and cope with the effects of earthquakes.

Both of our countries have long appreciated the need for better research into the mechanics of earthquakes and the basic geologic forces that produce them. Such knowledge, along with work into materials and design processes, allows our engineers to design buildings to better withstand powerful seismic waves; it allows planners to know much more about liquifaction and other site-specific phenomenon; and it allows communities to take effective steps to protect vital water, power, and communications systems from all but the most powerful earthquakes.

In the United States, aggressive research along all of these lines goes back to the creation of the National Earthquake Hazards Reduction Program (NEHRP) in the mid-1970s. I know a little about this program because I helped create it. NEHRP brings together the diverse communities of earthquake science, earthquake engineering, urban and state officials, and disaster mitigation. Since its inception, NEHRP has improved the state-of-the-art in building codes, engineering design, and earthquake science. And today, thanks to NEHRP, seismic hazard charts are updated every 4-5 years; building designers can work with complex earthquake simulations; and disaster planners have information and expertise that they can call upon in an instant to help in the event of an earthquake.

Recently, capitalizing on the success and hard work of NEHRP, the Clinton Administration expanded the concept to the National Earthquake Loss Reduction Program, which seeks to encompass an even broader community that deals with earthquakes, including the satellite, defense, and education communities.

Despite the successes of NEHRP, I must confess that I had grander visions for the program back when we wrote the Act in the 1970s. The awful truth of disaster planning in the United States is that immediately after a disaster much attention focuses on mitigation and much hand-wringing occurs when we realize how much more could have been done with 20-20 hindsight. However, as the memories of the disaster fade, so does the commitment of time and resources necessary to prepare against the next disaster.

NEHRP has suffered from this periodic cycle of attention-followed-by-inattention. After an earthquake, NEHRP is charged with the completion of many tasks and is granted sufficient funding to pursue those goals. However, in subsequent years the Nation's commitment of funding and resources wanes(—though I can assure you that the commitment of Members in the California delegation remains unflagging). When a new disaster happens, politicians and the public look back at NEHRP's goals and grill the administrators about why those goals were not met. In the emotional moments in the wake of a disaster, a little thing like the lack of long-term support is not an acceptable answer, even though it is often the truth.

My hope is that more cooperation between my Nation and Japan will smooth out this cycle of attention-inattention. In addition to their own phenomenal scientific expertise and design and planning skills, the Japanese bring with them a strong cultural value of carrying through on long-term commitments. This is an important lesson that Americans could benefit from in more areas than just earthquake research and disaster planning.

With more consistent funding, with shared research objectives and missions, and with shared lessons, I hope that cooperation between our nations will influence the United States to develop a stronger pro-active vision of the future, where mitigation of natural disasters is part of doing business. Toward that end, I propose that U.S. earthquake R&D be funded from a separate trust fund for disaster mitigation. I am open to recommendations as to a source of funding for this trust fund, though it may be possible simply to, for example, apply a levy to disaster insurance policies. Such a steady source of funds could go for a wide-range of capital and ongoing expenditures, including the construction of new R&D facilities.

I plan to promote such a fund and will work to include it in Federal disaster insurance legislation during the 105th Congress.

In the scientific and technical arena, there is no doubt that there is much to learn from Japanese and American cooperation. In earthquake science and preparedness, much informal cooperation already occurs. But both countries, I believe, can benefit from more formal cooperation. An example of an area that I believe would particularly benefit is earthquake engineering testing.

The most recent NEHRP Authorization bill directed the U.S. Executive Branch to study the state of national earthquake engineering testing capabilities. The resulting report from the Earthquake Engineering Research Institute (EERI) found that "a significant reduction in economic and other losses ... can be realized through an accelerated ... program of earthquake engineering and testing."

The report emphasized that even advanced computer simulations of buildings in earthquakes cannot fully capture the complexity of the structural response. Too little is known from the everyday experience of earthquake engineers to test these simulations, and only a full-scale experimental testing program can provide sufficient 'ground-truths' for computer simulations.

Many important examples of engineering testing results, from even the limited amount of research performed on existing facilities, have advanced the state-of-the-art in earthquake engineering. They include testing of concrete supports for bridges and design components for concrete buildings. The newest buildings and bridge supports showed dramatically improved performance in the Northridge Earthquake of 1994. However, the failure of some steel-framed buildings, composite structures such as the apartment building in Northridge, and other building and roadway designs dramatically demonstrate the need for enhanced research and testing.

I find that my constituents in California are shocked when they learn how little testing of designs and construction methods occur in the United States. It

seems like a simple step to them. My constituents wonder why, if we can build wind-tunnels to test airplanes, and we can spend hundreds of millions of dollars on real-time satellite systems to track life-threatening storms in the Atlantic, why we cannot invest in the shake tables we need to adequately test building designs.

The EERI report drew from a long history of reports dating back to 1973 that chronicled the decline of American earthquake engineering testing facilities. The American engineering community has been trying to alert the public to this problem for more than a decade, but very few of us had been listening. The Japanese, on the other hand, did move forward to build several testing facilities, and cooperative ventures now could perhaps utilize these facilities.

The past reports offered many recommendations for the United States, from the construction of a very large, and expensive, shake table to the development of a series of smaller tables that would each simulate a specific component of ground motion. EERI found that, first and foremost, funds should go to enhancing existing facilities and developing several integrated research and testing centers. In addition, this effort should in all aspects by guided by an overall strategic R&D plan.

I wholeheartedly applaud this recommendation and I am excited to see that the NEHRP agencies have moved to implement some of these recommendations. Moreover, I plan to support them in every way that I can, as we move to re-authorize NEHRP in the Science Committees in Congress and we attempt to fund desperately needed capital investments in engineering.

In developing its report, EERI also pointed to the importance of international collaboration with our partners that regularly experience the devastation of earthquakes. A U.S.-Japan cooperative program could make the best use of existing facilities and begin to develop new state-of-the-art scientific equipment to push the frontier of earthquake engineering science. As I looked through the agenda of this meeting, I did not see an explicit discussion of such testing facilities, but I am sure that there must be many discussions of such collaboration within the topics listed. If this is not the case, however, I would like to challenge the meeting to consider this proposal; and I hope that as the United States and Japan move forward in this cooperative venture that engineering testing is placed high on the list of important steps to take.

I would not feel so passionately about the issue of earthquake research and disaster preparation if the stakes for inactivity weren't so high. For those who forget too easily what those stakes are, I recommend they go back and look at the numbers for casualties and economic loss in the Northridge and Kobe quakes. Those stand as only the most recent reminders that neither California,

my home state, nor Japan can afford to build any more buildings or invest in any more lifelines that are incapable of withstanding a major earthquake.

But you know what? We will continue to leave ourselves vulnerable to such losses until we do more research and development in this important area. As much as each of our countries can do alone, I know that we can do even more, even better by working together. Thank you.